SOLUTION

With two zeros in column 2, we choose to expand about that column (⟨acronymref | theorem | DEC⟩),

$$\begin{vmatrix} 2 & 0 & 3 & 2 \\ 5 & 1 & 2 & 4 \\ 3 & 0 & 1 & 2 \\ 5 & 3 & 2 & 1 \end{vmatrix} = 0(-1)\begin{vmatrix} 5 & 2 & 4 \\ 3 & 1 & 2 \\ 5 & 2 & 1 \end{vmatrix} + 1(1)\begin{vmatrix} 2 & 3 & 2 \\ 3 & 1 & 2 \\ 5 & 2 & 1 \end{vmatrix} + 0(-1)\begin{vmatrix} 2 & 3 & 2 \\ 5 & 2 & 4 \\ 5 & 2 & 1 \end{vmatrix} + 3(1)\begin{vmatrix} 2 & 3 & 2 \\ 5 & 2 & 4 \\ 3 & 1 & 2 \end{vmatrix}$$

= (1)2(1(1)-2(2))-3(3(1)-5(2))+2(3(2)-5(1))+(3)2(2(2)-4(1))-3(5(2)-4(3))+2(5(1)-3(2))

= (-6+21+2)+(3)(0+6-2)=29

SOLUCION

Con dos ceros en la Colmna 2, seleccionamos para expandir tal columna (⟨acronymref|theorem|DEC⟩),

$$\begin{vmatrix} 2 & 0 & 3 & 2 \\ 5 & 1 & 2 & 4 \\ 3 & 0 & 1 & 2 \\ 5 & 3 & 2 & 1 \end{vmatrix} = 0(-1)\begin{vmatrix} 5 & 2 & 4 \\ 3 & 1 & 2 \\ 5 & 2 & 1 \end{vmatrix} + 1(1)\begin{vmatrix} 2 & 3 & 2 \\ 3 & 1 & 2 \\ 5 & 2 & 1 \end{vmatrix} + 0(-1)\begin{vmatrix} 2 & 3 & 2 \\ 5 & 2 & 4 \\ 5 & 2 & 1 \end{vmatrix} + 3(1)\begin{vmatrix} 2 & 3 & 2 \\ 5 & 2 & 4 \\ 3 & 1 & 2 \end{vmatrix}$$

= (1)2(1(1)-2(2))-3(3(1)-5(2))+2(3(2)-5(1))+(3)2(2(2)-4(1))-3(5(2)-4(3))+2(5(1)-3(2))

= (-6+21+2)+(3)(0+6-2)=29